



Two New Species of *Bomarea* (Alstroemeriaceae) from Colombia

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ABSTRACT. The revision of the family Alstroemeriaceae for the *Flora of Colombia* recognizes two previously undescribed species of *Bomarea* Mirbel: *B. callejasiana* Alzate and *B. colombiana* Alzate. *Bomarea callejasiana* is recognized because it has slightly hypocrateriform perianth and *B. colombiana* because of its pilose and glaucous abaxial leaf surface. Currently, both species are only known from Colombia.

RESUMEN. La revisión de la familia Alstroemeriaceae para la *Flora de Colombia*, permitió dar a conocer dos especies de *Bomarea* Mirbel no descritas: *B. callejasiana* Alzate y *B. colombiana* Alzate. *Bomarea callejasiana* se reconoce por tener perianto ligeramente hipocrateriforme y *B. colombiana* por sus hojas con envés piloso y glauco. Actualmente ambas especies, son solo reportadas para Colombia.

Key words: Alstroemeriaceae, *Bomarea*, Colombia, IUCN Red List.

Bomarea Mirbel (Alstroemeriaceae) was established in 1804, initially including six species segregated from the genus *Alstroemeria* L. Sanso and Xifreda (1995) later proposed *B. ovata* (Cavanilles) Mirbel as the type of the genus. Traditionally, *Bomarea* has been distinguished from *Alstroemeria* because the latter has actinomorphic and erect flowers. According to Sanso and Xifreda (2001), additional characters, such as morphology of the subterranean organs, pollen exine sculpture, and dehiscence of fruits, are useful to separate the genera.

The genus *Bomarea* is widely distributed in Colombia, particularly in middle and high Andean

forest, where the taxon presents one of the largest diversities for the family (Hofreiter & Tillich, 2002). Species of *Bomarea* include climbing and erect herbs with persistent, mostly resupinate leaves, an inferior ovary, six stamens, free perianth segments, an umbellate inflorescence, and underground rhizomes.

Bomarea in Colombia comprises 35 taxa belonging to the subgenera *Bomarea* Mirbel, *Sphaerine* Pax, and *Baccata* Hofreiter, which grow in low-montane and montane forest (Alzate, pers. obs.); *Bomarea* is the most diverse subgenus, with approximately 70 to 75 species (Hofreiter, 2005), and is found between 1800–2800 m (Hofreiter & Tillich, 2002).

The recent taxonomical revision of the family Alstroemeriaceae for the *Flora of Colombia* revealed the existence of two previously undescribed species of *Bomarea*, which are described here.

Bomarea callejasiana Alzate, sp. nov. TYPE: Colombia. Nariño: Mun. Barbacoas, corr. Altaquer, vereda El Barro, reserva nat. Río Ñambi, vertiente occidental andina, bosque pluvial premontano, margen izquierda del río Ñambi, 1325 m, 11 Dec. 1993, P. Franco, D. Giraldo, W. Beltrán, A. Prieto & O. Rivera 5147 (holotype [fl], COL; isotype [st], COL). Figure 1.

Herba sarmentosa; caule 3–5 mm, puberulente. Folia late ovata, 14–21 × 7.4–10.4 cm, glabra, discoloria. Inflorescentia composita; bracteis foliaceis, 5.6–9.5 × 0.5–4 cm, ovatis; bracteolis 2.5–3.4 × 0.4–0.7 cm, linearis ad lanceolatas; radiis puberulentibus, purpurascens. Segmenta perianthii inaequalia; sepalis rubris, 5–6 cm; petalis luteis, maculatis, 5.5–6.5 cm, apice 1–2 mm; ovario glabro, glabrescente.

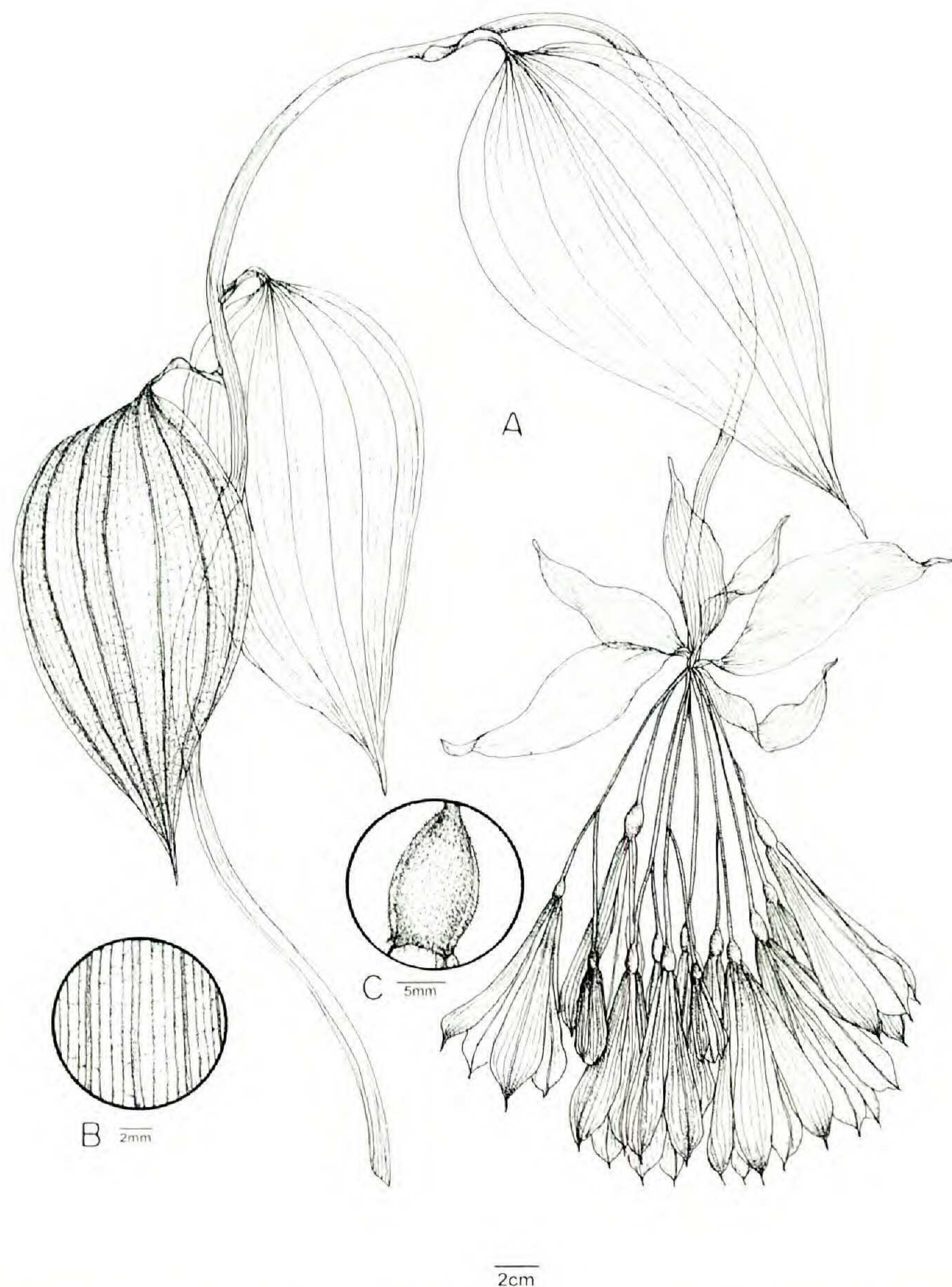


Figure 1. *Bomarea callejasiana* Alzate. —A. Habit. —B. Leaf, abaxial surface. —C. Ovary, external surface. Based on the type *P. Franco et al. 5147* (COL).

Sarmentose herb; stem 3–5 mm diam., terete, puberulent, purple; internodes 1.5–6 cm. Leaves petiolate, resupinate, petiole 17–27 mm, glabrous; leaf blade 14–21 × 7.4–10.4 cm, widely ovate, granular adaxially and glabrous, pustulate, pale abaxially, papyraceous when dry; base rounded, apex acuminate. Inflorescence compound umbel; bracts leaflike, petiolate, 5.6–9.5 × 0.5–4 cm, ovate, papyraceous when dry, base obtuse, apex acuminate, margin entire; bracteoles sessile, 2.5–3.4 × 0.4–0.7 cm, linear to lanceolate, apex acute to acuminate; rays 12 to 15, puberulent, quite purple, 7–10 cm; pedicels 3–5 cm, puberulent. Flowers 2 per fertile axis, inner perianth segments longer than the outer; outer tepals 5–6 cm, slightly hypocrateriform, ovate, glabrous to shortly puberulent, apex obtuse, 1–2 mm, red-fuchsia; inner tepals 5.5–6.5 cm, oblanceolate, glabrous, apex acuminate, unguiculate, 1–2 mm, cream with dark spots and purple costae; filaments 40–50 mm, glabrous;

anthers 3–4 mm; ovary inferior, subspherical, apically constricted, glabrous to glabrescent, rugose; style 45–65 mm, glabrous. Fruit and seeds not seen.

Distribution and habitat. The new species is endemic to Colombia. *Bomarea callejasiana* has only been collected in the vicinity of the town Barbacoas, department of Nariño. This area is a premontane pluvial forest, at 1300 m, influenced by the Andean western slope and the Pacific plain, which produces high humidity at median altitudes, thus producing a unique floristic habitat. The persistence of this species depends on the conservation of this forest.

IUCN Red List category. We assess the status of this species as EN or endangered according to IUCN Red List criteria (IUCN, 2001).

Phenology. *Bomarea callejasiana* flowers between December and January.

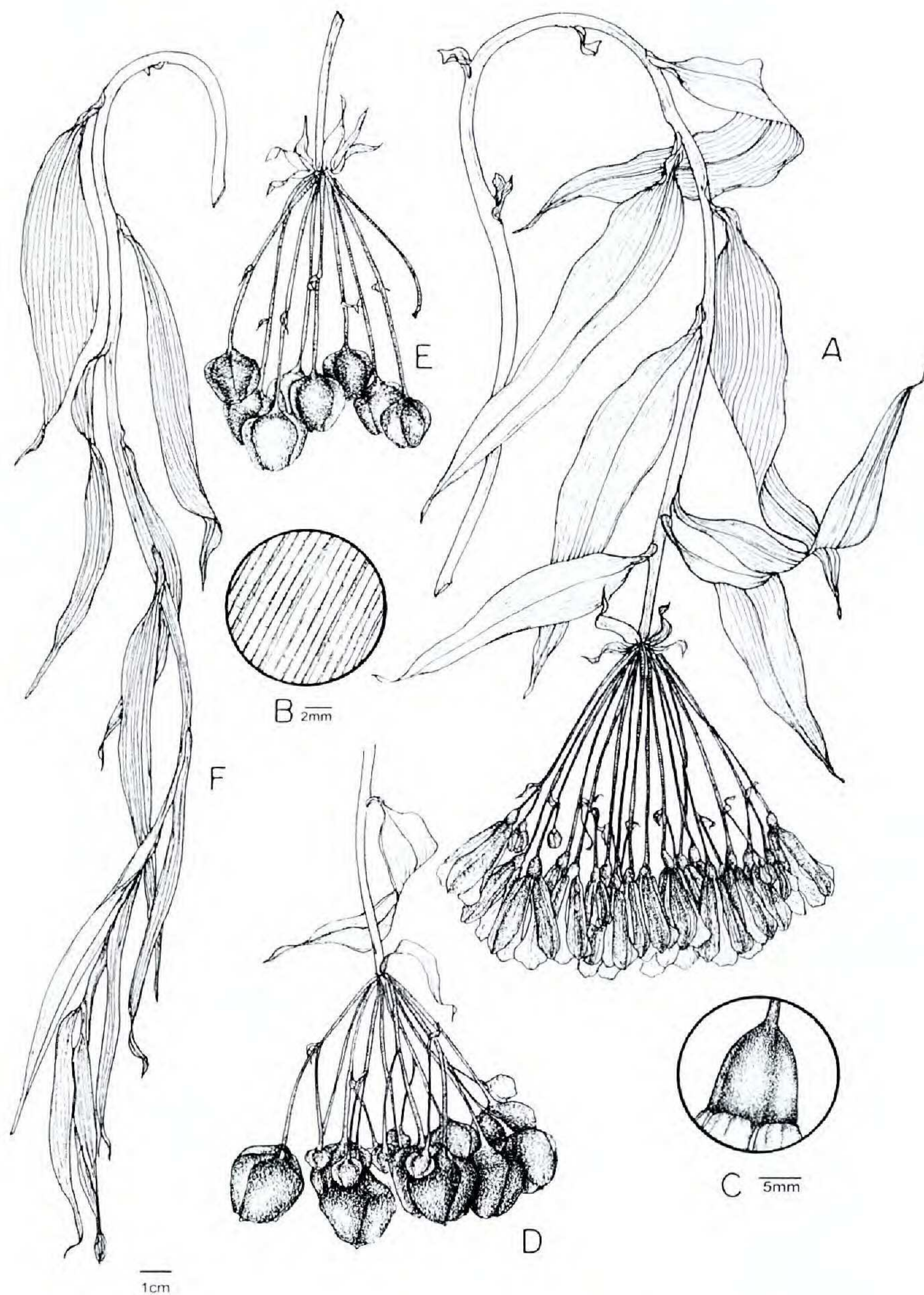


Figure 2. *Bomarea colombiana* Alzate. —A. Habit. —B. Leaf, abaxial surface. —C. Ovary, external surface. —D. Fruits developed in compound umbel. —E. Fruits in simple umbel. —F. Shoot tip with young leaves protecting apical meristems. Based on the holotype *N. de López 370* (COL) and the paratype *J. Kirkbride Jr. & E. Forero 1787* (NY).

Etymology. The species is named in honor of the Colombian botanist Ricardo Callejas Posada (HUA), specialist in the family Piperaceae.

Taxonomic relationships. *Bomarea callejasiana* is included in the subgenus *Bomarea*, section *Vitellinae* Killip (Baker, 1882; Killip, 1936), which is characterized by a compound umbel and by having perianth segments of different sizes. *Bomarea callejasiana* is distinguished by characteristics such as the hypocra-teriform perianth, its leaves with a granular adaxial surface but pustulate and discolored abaxially, and the red-fuchsia color of the outer tepals.

Bomarea colombiana Alzate, sp. nov. TYPE: Colombia. Magdalena: Sierra Nevada de Santa Marta, Cerro Quemado, 2420 m, 18 July 1969, *N. de López 370* (holotype, COL). Figure 2.

Herba sarmentosa; caule 5–7 mm, glabro, glabrescente. Lamina ovata ad lanceolatam, 9–13 × 2–4 cm, inferne dense pilosa, glauca. Inflorescentia umbella simplex vel composita; bracteis foliaceis, ovatis; bracteolis lanceolatis; radiis 8 ad 15, 5–9 cm, glabris ad puberulentis. Perianthium sepalis rubris, 1.8–3 cm, petalis flavi-viridibus, purpureis maculatis, 2.4–3.2 cm; ovario glabrescente ad puberulentem.

Sarmentose herb, pendant at the apex; stem 5–7 mm diam., glabrous to glabrescent; internodes 1.8–5.5 cm. Leaves petiolate, resupinate; petiole 8–14 mm, puberulent; leaf blade 9–13 × 2–4 cm, ovate to lanceolate, glabrous adaxially, densely pilose and glaucous abaxially, chartaceous when dry, base obtuse, apex acuminate, margin revolute. Inflorescence simple or compound umbel; bracts leaflike, ovate-lanceolate, petiolate to sessile, 6–7 × 1–1.3 cm, ovate-lanceolate, pilose, pubescent or puberulent abaxially, base acute, apex acuminate; brac-

teoles sessile, 5–15 × 2–4 mm, lanceolate, adpressed, medial to the ray, pubescent abaxially, apex acute; inflorescence rays 8 to 15, 5–9 cm, glabrous to puberulent; pedicels 3–4 cm, glabrous, pubescent, or puberulent. Flowers 1 or 2 per fertile axis, inner perianth segments longer or equal sized to outer ones; outer tepals 1.8–3 cm, oblanceolate, puberulent, apex obtuse, unguiculate, 0.5–1 mm, red; inner tepals 2.4–3.2 cm, widely obovate, apex mucronate, yellow-green with purple maculae, glabrescent, costae purple with sparse trichomes; filaments 17–25 mm, glabrescent; anthers 2–3 mm; ovary inferior, turbinate, rugose, glabrescent to puberulent; style 22–29 mm, puberulent. Capsule subspherical, 1.3–2 cm diam.; seeds 2–3 mm diam., spheroid, sarcotesta red.

Distribution and habitat. This species is endemic to the Sierra Nevada de Santa Marta between 2100 and 3500 m. The highest peak in the Sierra Nevada de Santa Marta is 5700 m, which emerges from a coastal plain as an island that has been isolated for about 3 million years (van der Hammen, 1974). This isolation has had marked effects on the colonization pattern and speciation of the existing vegetation, which also includes *Bomarea moritsiana* Klotzsch ex Kunth, *B. patinii* Baker, and *B. edulis* (Tussac) Herbert.

IUCN Red List category. We assess the status of this species as EN or endangered according to IUCN Red List criteria (IUCN, 2001).

Phenology. Collected in flower and fruit during the months of January, February, July, September, and October.

Etymology. The specific epithet refers to Colombia, where it is endemic.

Taxonomic relationships. Subgenus *Bomarea* is a group characterized by a compound umbel and sarmentose habit. The species complex includes *B. colombiana*, *B. moritsiana*, *B. longipes* Kränzlin, *B. caucana* Alzate, and *B. hazenii* Killip; all species have foliar pubescence and a similar biogeographical

distribution. *Bomarea colombiana* differs from the remaining species of the group by its abaxially glaucous leaves and the apical meristems protected by numerous juvenile leaves with the appearance of large bracts.

Paratypes. COLOMBIA, **Magdalena:** Sierra Nevada de Santa Marta, cabecera del río Sevilla, H. Barclay 6566 (COL, MO); SE slopes Sierra Nevada de Santa Marta, hoyo del río Donachuí, J. Cuatrecasas & R. Romero 24690 (COL); SE forested slopes from Cancurúa to Sogrome, J. Cuatrecasas & R. Romero 24829 (COL); Subparamos, J. Cuatrecasas & R. Romero 24678 (COL), J. Kirkbride Jr. & E. Forero 1787 (COL, NY).

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